/6.4/100

27251
S/020/61/139/005/001/021
C111/C222

AUTHOR: Grigor'yeva, I.A.

TITLE: The form of a certain class of extremum functions least
deviating from zero and satisfying several relations which
are linear with respect to coefficients

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, no. 5, 1961,
1044 - 1047

TEXT: Let $y_n(x) = \sum_{k=o}^{n} P_k x^k$ be a polynomial non-negative on

$[c,d]$ with real coefficients ; let $h \geqslant 0$ be a given integer ; let
$p(z)$ be a given summable and non-negative function on $[c,d]$; let
the interval $[a,b]$ lie in $[c,d]$; for $a > c$ let h be even.

Problem : Among all polynomials $y_n(x)$ satisfying

$$\omega_j \{y_n\} = \sum_{k=o}^{n} P_k a_{kj} = A_j , \quad j = 1,2,\ldots,s \qquad (2)$$

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where a_{kj} and A_j are real numbers, $\sum_{j=1}^{s} |A_j| \neq 0$, determine that one

for which the oscillation

$$\mathcal{L}^{(h+1)}\left\{y_n\right\} = \int_a^b (b - x)^h p(x) y_n(x) dx \tag{3}$$

of the function

$$f_n(x) = \int_a^x (x - z)^h p(z) y_n(z) dz \tag{1}$$

is minimal on the interval $[a,b]$.
Since the $y_n(x)$ for $x \in [c,d]$ are non-negative they are representable in
the form

$$y_n(x) = \varphi(x) u_m^2(x) q_r(x) \qquad , \tag{4}$$

where $\varphi(x)$ is a polynomial of at most second degree non-negative on

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The form of a certain class   ...

$[c,d]$ which may have only the roots $x = c$ and $x = d$; $u_m(x)$ is a polynomial of at most m-th degree all roots of which are real and lie in $[c,d]$; $q_r(x)$ is a polynomial of at most r-th degree the real roots of which lie outside $[c,d]$. It holds $0 \leqslant r < s$.

It is shown that $y_n'(x)$ is extremal then and only then if its coefficients satisfy the relation

$$\begin{vmatrix} \int_a^b (b-x)^h\, p(x)\, \varphi(x)\, u_m(x)\, x^l\, dx & \ldots & \int_a^b (b-x)^h\, p(x)\, \varphi(x)\, u_m(x)\, x^{l+s}\, dx \\ \omega_1(\varphi(x)\, u_m(x)\, x^l) & \ldots & \omega_1(\varphi(x)\, u_m(x)\, x^{l+s}) \\ \cdots\cdots\cdots & \cdots & \cdots\cdots\cdots \\ \omega_s(\varphi(x)\, u_m(x)\, x^l) & \ldots & \omega_s(\varphi(x)\, u_m(x)\, x^{l+s}) \end{vmatrix} = 0, \quad (10)$$

$$l = 0, 1, \ldots, \tau.$$

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For the proof it is additionally assumed that the forms $\sum\limits_{k=0}^{n} p_k a_{kj}$,

$j = 1,2,\ldots, s$ and $y_n(z_i) = \sum\limits_{k=0}^{n} p_k z_i^k$, $i = 1,2,\ldots, t$ m are linearly

independent ; here $z_1, z_2, \ldots, z_t$ are all roots of $y_n(x) = 0$ on (c,d).

Two examples for the application of (10) are given. There are 4 Soviet
references. The author mentions B.A. Rymarenko and S.N. Bernshteyn.

PRESENTED: March 27, 1961, by V.I. Smirnov. Academician

SUBMITTED: March 22, 1961

Car

S/020/62/147/002/001/021
B112/B186

AUTHOR: Grigor'yeva, I. A.

TITLE: An extension of Bernstein's theorem on the form of
             non-negative trigonometrical polynomials to the case of an
             arbitrary number of relations between the coefficients

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 147, no. 2, 1962, 283-286

TEXT: The problem is to find non-negative trigonometrical sums
$$s_n(\vartheta) = a_0 + a_1\cos\vartheta + b_1\sin\vartheta + \ldots + a_n\cos n\vartheta + b_n\sin n\vartheta \quad (1)$$ which

minimize the integral $\int_0^{2\pi} s_n(\vartheta)\varphi(\vartheta)d\vartheta$, (3) where $\varphi(\vartheta) \geqslant 0$ is a given

integrable function, and which fulfill the relations

$$\int_0^{2\pi} s_n(\vartheta)F_j(\vartheta)d\vartheta = a_0 A_{0j} + \sum_{k=1}^{n}(a_k A_{kj} + b_k B_{kj}) = \omega_j \quad (j = 1,\ldots,s). \quad (4)$$

In addition, it is assumed that the linear forms
$$a_0 A_{0j} + \sum_{k=1}^{n}(a_k A_{kj} + b_k B_{kj}), \quad j = 1,\ldots,s \quad \text{and} \quad a_0 + \sum_{k=1}^{n}(a_k\cos k\vartheta_1 + b_k\sin k\vartheta_1)$$

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An extension of Bernstein's...   S/020/62/147/002/001/021
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are linearly independent (ϑ_i are the real roots of the equation $s_n(\vartheta) = 0$, these being different from one another and contained in the interval $[0, 2\pi)$). The solution of the problem is represented in the form $s_n(\vartheta) = P^2(\vartheta)q(\vartheta)$, where $P(\vartheta) = A \sin((\vartheta - \vartheta_1)/2) \ldots \sin((\vartheta - \vartheta_m)/2)$, and where the polynomial $q(\vartheta)$ is greater than or equal to $\varrho^2 > 0$ for any real ϑ. As an example, the problem $a_0 = (1/2\pi)\int_0^{2\pi} s_n(\vartheta)d\vartheta = \min$, $s_n(0) = A^2$, $s_n'(0) = B$, $s_n''(0) = C$ ($A^2 \geqslant 0$, B, and C are given numbers) is considered. Its solution is $\min a_0 = 2.3 \cdot C/n(n + 1)(n + 2)$.

PRESENTED: June 1, 1962, by V. I. Smirnov, Academician

SUBMITTED: May 29, 1962

Card 2/2

GRIGOR'YEVA, I.A.

Form of extremum nonnegative polynomials whose coefficients obey several linear relations. Dokl. AN SSSR 16. no. 4:732-742 Je '65.
(MIRA 18:6)

1. Kiyevskiy politekhnicheskiy institut. Submitted December 4, 1964.

GRIGOR'YEVA, I-F

Voyennaya Geologiya (Military Geology, By) G. V. Bogomolov, N.I. Nikolayev
(ET AL) Pod. Red. A. M. Ovchinnikova, V. V. Popova 1 Iv. F. Grigor'yeva.
Moskva, Gosgelogizdet, 1945.

374 P. Illus., Diagrs., Maps, tatles, "Literatura" throughout.

SO: N/5
    621.5
    .C9

GRIGOR'EVA, L.A., FOFIK, N./A., IERMAKOVAIA L.I.

Separation of n-propyl alcohol from the factory propia.y.
transfer of alcohols. Khim. prom. 41 no.10.786 O '65.

MIRA 19:11)

1. Kuybyshevskiy zavod sinteticheskogo spirta.

GAVRILOV, N.I.; GRIGOR'YEVA, I.P.; AKIMOVA, L.N.; YEROKHIN, V.K. [deceased]

Certain properties of trityl peptides. Zhur. ob. khim. 31 no.3:739-742 Mr '61.   (MIRA 14:3)

1. Moskovskiy gosudarstvennyy universitet.
            (Peptides)

GRIGOR'YEVA, K.

Leningrad firms. Mashinostroitel' no.4:35-37 Ap '63. (MIRA 16:5)
(Leningrad--Industrial management)

GRIGOR'YEVA, K.

Worker's conscience. Mashinostroitel' no.7:3-4 Jl '63.
(MIRA 16:9)

(Leningrad--Diesel engines)

S/152/62/000/010/001/001
B126/B186

AUTHORS: Skripnik, Ye. I., Simileyskiy, A. Z., Makarenko, M. A.,
Grigor'yeva, K. M., Dolgasov, V. I.

TITLE: Dehydration and desalting of sulfurous and highly sulfurous
crudes

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Neft' i gaz, no. 10,
1962, 67 - 70

TEXT: The purpose of these tests, following the ultrasonic... ...
dehydration tests described in the article "Dehydration of crude oil by
ultrasonic method" by Ye. I. Skripnik and A, Z. Simileyskiy in "Neft' i Gaz",
no. 2, 1962, was to desalt highly sulfurous crudes to a salt content of
only 50 mg/l and less. Three types of crudes from the Kuybyshev oil
producing region were used, having respectively a viscosity of 38.2, 86.5
and 47.2 cst at 20°C, a salt content of 2800, 4000 and 1044 mg/l and a
sulfuric acid tar content of 50,0, > 80,0 and 46,0 % with about 3 % sulfur.
The following optimum conditions for both desalting and dehydration were
established: temperature 96 - 100°C, for heavy crudes low pressures

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Dehydration and desalting of...

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(maximum 2 atm), washing with a 1% solution of trisodium phosphate, mixing
with a propeller stirrer for 1 - 2 minutes. The same conditions apply for
wet crudes and those with a high salt content, > 2000 mg/l, but in this
case the two-stage processing has to be used. If crudes are processed in
one stage, higher temperatures (160 - 200°C) are necessary; the reagent is
an aqueous caustic soda solution. The final ultrasonic processing which
results in a complete dehydration must be carried out at a low frequency,

15 - 17 kc, and at a rather low intensity amounting to 0.10 - 0.12 w/cm^2,
so as to produce sound waves of greater length; settling time is 1 hr at
80°C. The tests showed that heavy, sulfurous and highly sulfurous crudes,
forming very stable emulsions, can be desalted and dehydrated by this method.
There are 7 tables.

ASSOCIATION: Kuybyshevskiy politekhnicheskiy institut im. V. V. Kuybysheva
             (Kuybyshev Polytechnic Institute imeni V. V. Kuybyshev)

SUBMITTED: May 24, 1962

Card 2/2

0,

USSR/Farm Animals. Horses.

Abs Jour: Ref Zhur-Biol., No 20, 1956, 92565.

Author : Grigor'yeva K.N.
Inst   : Moscow Agricultural Academy im. K.A. Timiryazev.
Title   : Problem of Pulmonary Gas Metabolism Changes in Young
          Trotters During the Period of Stud-Farm Training.

Orig Pub: Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957,
          vyp. 30, ch. 2, 284-290.

Abstract: The tests covered 8 colts of the Orel trotter breed
          12-13 months of age. Gaseous metabolism was deter-
          mined using "Masochniy" respiration apparatus. It
          was established that in proportion to the increase
          in load during training, one observed a rise in the
          indicators of gaseous metabolism (pulmonary venti-

Card   : 1/2

USSR/Farm Animals. Horses.   Q

Abs Jour: Ref Zhur-Biol., No 20, 1958, 92965.

              lation, volume of inhalation and frequency of re-
              spiration).

Card   : 2/2

                                        44

GRIGOR'YEVA, K. N. Cand Agr Sci -- (diss) "Pulmonary gas exchange in colts of the Orёl trotter breed during the period of stud training." Mos, 1958. 19 pp (Mos Order of Lenin Agr Acad im K.A. Timiryazev), 110 copies (KL, 36-58, 113)

-48-

GRIGOR'YEVA, K.N.

Spore-pollen complexes in the Upper Cretaceous of the Kasskaya 1-R hole. Trudy SNIGGIMS no.8:203-211 '60.   (MIRA 15:9)
(Yartsevo District--Palynology)

IZABOLINSKAYA, R.M., kand. med. nauk; KOGOSOVA, L.S.; VEL'TMAN, R.P.,
nauchnyy sotrudnik; GRIGOR'YEVA, K.N.; SOSHINA, T.K.

Some indices of metabolism and reactivity of the organism in
extensive pulmonary tuberculosis. Klin. khir. no.2:47-53 '65.
(MIRA 18:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut tuberkuleza i
grudnoy khirurgii.

ARKHANGORODSKIY, L.A.; VITELIS, M.F. [deceased]; GRIGOR'YEVA,K.P., inzhener, redaktor; LAZAREVSKIY, L.I., redaktor; LABUS, G.A., tekhnicheskiy redaktor

[Assembly of elevators] Montazh elevatorov. Pod red. K.P.Grigor'eva. Moskva, Gos. izd-vo tekhn. i ekon. lit-ry po voprosam zagotovok, 1951. 479 p. [Microfilm]   (MLRA 10:1)
       (Grain elevators)

GRIGORIEVA, K. S.

T. I. Yurshenko, V. A. Putshkin and K. S. Grigorieva

"The Initiating Action of Tertiary Hydroperoxides and Their Influence on the Polymerization Rate." Reports Academy of Sciences, USSR, 75, 574-550, December 1950, Lvov, Polytechnic Institute

ABSTRACT AVAILABLE

D-50054

GRIGOR'YEVA, K. S.

C.A. V-48
June 10, 1954
Synthetic Resins
and Plastics

Peculiarities of the initiating action of tertiary hydroperoxides in the emulsion polymerization. T. I. Yurzhenko, A. A. Puchin, and K. S. Grigor'eva (Lvov Polytech. Inst.). Doklady Akad. Nauk S.S.S.R. 92, 97-100(1953); cf. ibid. 74, No. 1(1950); C.A. 45, 2757a.--The initiating activity of *tert*-butyl hydroperoxide (I), phenylisopropyl hydroperoxide (II), 1,1-diphenylethyl hydroperoxide (III), and triphenylmethyl hydroperoxide (IV), in emulsions of styrene in H_2O in the presence of Na butylnaphthalenesulfonate emulsifier and Na_2CO_3 at 40°, 50° and 60°, can be given by the expression: $dx/dt = Kn(a - x)^{1.5}$, where a is the initial amt. of monomer in moles per l., x is the amt. of monomer reacting in time t (min.), and Kn is the polymerization rate const. The order of activity is I, K persulfate, II, III, Bz_2O_2. Thus the tertiary hydroperoxides are dispersed in an order res... from that of ... of their thermal decompn. and the... ...polymerizations in the condensed phase. The... ...polymers r...s with increase rate of po... when tertiary hydroperoxides are used as initiators a... the ...butyl deriv. gave a higher mol. ...product ...the ...hydroperoxide. If V is the rate of ...stage of polymerization given in moles per l. of condi..., V_t is the total rate of polymerization, a... P is the av... ...of polymerization their relationship is given by... $V_i = V_t/P$. The rate of initiation varies from the total ...polymerization rate. Thus, I shows a smaller initiation a... ...total polymerization rate than does III. These d... ...explained by different distribution ... ...the phase of the ...

GRIGOR'YEVA, K. S.

Synthesis of 1-phenyl-1-(4-tert butyl)phenylethane hydroperoxide with the use of chromatographic method of its isolation. K. S. Grigor'eva and T. I. Yurzhenko (Polytech. Inst., Lvov). Doklady Akad. Nauk S.S.S.R. 94, 881-2(1954); cf. C.A. 48, 490e.—Reaction of AcPh with p-Me$_3$CC$_6$H$_4$MgBr (obtained from Mg and the product of bromination of Me$_3$CPh in the presence of iodine; only the p-Br product reacts with Mg) gave p-Me$_3$CC$_6$H$_4$CMePhOH, m. 86-7° in 75-80% yield. This was reduced with HI in AcOH to the hydrocarbon, p-Me$_3$CC$_6$H$_4$CHMePh, b$_7$. 148-50°, which was oxidized at 99-5° in 0.1N NaOH with a stream of O for 143 hrs., yielding a soln. containing 35.8% hydroperoxide. The product in petr. ether was passed over Al$_2$O$_3$, which retained the hydroperoxide, which was then eluted with Et$_2$O. Evapn. of the eluate gave 96-7% pure hydroperoxide, C$_{18}$H$_{22}$O$_2$, purified by a 2nd adsorption; pure product, m. 45-0°. Treated with KI-AcOH it gave the original carbinol, indicating the structure p-Me$_3$CC$_6$H$_4$-C(Me)(Ph)OOH.   G. M. Kosolapoff

GRIGOR'YEVA, K. S.

GRIGOR'YEVA, K. S.--"The Synthesis of Hydrogen Peroxides of the 1,1-Diphenyl Ethane Series Using the Chromatographic Method of Separation." Min Higher Education Ukrainian SSR. L'vov State U imeni Ivan Franko. L'vov, 1955. (Dissertation for the Degree of Candidate in Chemical Science).

SO Knizhnaya letopis'
    No 2, 1956.

AUTHORS: Yurzhenko, T. I., Grigor'yeva, K. S.   20-118-5-34/59
               Aref'yev, N. V., Vilenskaya, M. R.

TITLE: The Synthesis of Alkylated Hydroperoxides of the 1,1-Diphenyl-
               ethane Series by the Method of Chromatographical Isolation
               (Sintez alkilirovannykh gidroperekisey ryada 1,1-difenil-
               etana s primeneniyem khromatograficheskogo metoda ikh
               vydeleniya)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 5, pp. 970-972
               (USSR)

ABSTRACT: It was stated (references 1-3) that the peroxidation chiefly
               occurs in the place of the C-linkage of the hydrocarbons
               (autoxidation). The reactivity of this linkage is increased
               in the series of the primary, secondary, and tertiary C-atom
               as well as under the influence (by the α carbon atom) of
               several other structural factors: of ether oxygen, of the
               benzene nucleus, of a 'double linkage, of a system of double
               linkages, and others. It was interesting to investigate the
               influence of different alkyl radicals which effect the C-H
Card 1/4   linkage and the hydroperoxide group through the benzene

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ethane Series by the Method of Chromatographical Isolation

nucleus, on the process of autoxidation and on the properties
of the hydroperoxides. So the problem arose how to synthetize
some hydroperoxides from the 1,1-diphenylethane and to
introduce in one of the benzene nuclei in the para position
at the central C-atom the following alkyl radicals: $CH_3(I)$,

$C_2H_5(II)$, $CH(CH_3)_2(III)$, and $C(CH_3)_3(IV)$ as well as $H-C_3H_7$.
As these hydroperoxides can be neither distilled nor
crystallized, they were produced by the autoxidation of the
corresponding hydrocarbons by means of the chromatographic
method of isolation and purification. The synthesis of the
initial hydrocarbons and the method of autoxidation are
described. The velocity and the level of the accumulation
of the hydroperoxides are given in table 2. These results
show that the autoxidation of separate hydrocarbons takes
place at an approximately equal velocity. At maximum
velocity 0,25 - 0,35% hydroperoxide are formed. From that
can be concluded that the nature of the alkyls introduced in
the para position has no essential influence on the peroxid-
ation in the place of the tertiary C-H linkage. The thermal

Card 2/4   stability of the peroxide seems to decrease with the

The Synthesis of Alkylated Hydroperoxides of the 1,1-Diphenyl- 20-118-5-34/59
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elongation of the aliphatic chain at the tertiary carbon atom.
The methodology of the isolation and purification according
to the chromatographical method (reference 7) is described.
Table 3 gives data of the reproduced peroxides (I - V). The
peroxides were also characterized by chemical methods
according to their decomposition products. From the data
obtained here it can be concluded that these peroxide compounds
represent tertiary hydroperoxides. Their structures are
explained by formulae; they can be denominated as follows:
I: 1-phenyl-1-p-tolylethane-hydroperoxide; II: 1-phenyl-1-p-
ethylphenylethane-hydroperoxide; III: phenyl-1-cumylethane-
-hydroperoxide-1; IV: 1-phenyl-1-4-tributylphenylethane-
-hydroperoxide-1; V: 1,1-diphenyl-n-butane-hydroperoxide-1.
There are 3 tables and 1o references, 5 of which are Soviet.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnical
                Institute)

PRESENTED: October 5, 1957, by B. A. Arbuzov, Member, Academy of Sciences
Card 3/4   USSR

The Synthesis of Alkylated Hydroperoxides of the 1,1-Diphenyl- 20-118-5-34/59
ethane Series by the Method of Chromatographical Isolation

SUBMITTED: October 2, 1957

Card 4/4

GRIGOR'YEU, K.S.

FERDINAND, Ya.M. (Rostov-na-Donu); Prinimali uchastiye: MARISOVA, A.P.;
    BRAYNINA, R.A.; MARGULIS, L.A.; MYASNENKO, A.M.; KOVALEVSKAYA,
    I.L.; TELESHEVSKAYA, E.A.; SOBOLEVA, S.V.; KALININA, K.I.;
    KOVALEVA, N.S.; IVANOVA, M.K.; ARENDER, B.A.; KUCHERENKO, R.A.;
    MANATSKOVA, K.S.; OLEYNIKOVA, L.T.; KIBARDINA, Yu.A.;
    GRIGOR'YEVA, K.S.; SEMENIKHINA, L.G.; CHERNYKH E.I.; DOROFEYEVA,
    V.M.; SHEVCHENKO, Ye.N.; ABRAMOVA, O.K.; SKUL'SKAYA, S.D.;
    PETROVA, Z.I.; MAKHLINOVSKIY, L.I.; KUZ'MINA, A.I.; AL'TMAN, R.Sh.;
    MARDERER, R.G.; YENGALYCHEVSKAYA, L.N.; CHIRKOVA, M.V.; TERESHCHENKO,
    N.I.; SHELKOVNIKOVA, M.A.; PROKOPENKO, V.V.; BEKLEMESHEVA, Ye.B.;
    BARANOVA, T.V.

Effectiveness of specific prophylaxis with alcohol divaccine
against typhoid and paratyphoid B fever in school-age children.
Zhur. mikrobiol., epid. i immun. 41 no.1:23-27 Ja '64.
                                   (MIRA 18:2)

Mechanism and Formation of Asphaltenes in Process of Thermal Decomposition of Brown Coals. Karzhev, V.I., and Grigoryeva, K.V. (Tr.Inst. ...; abstr. in Chem. Abstr., 1953, vol 47, ...).

Heating various specimens of peat, peat lignin, cellulose, ... acidic ... material, either in nitrogen or without nitrogen, at $550°$ 1 hour after a 1 hour warm-up period invariably gave 10-30 times more asphaltenes in cases in which the nitrogen stream was not passed over the heated material in a tube reactor. The ratio of acidic asphaltenes to phenols was 14-40 times greater in the nitrogen atmosphere than without the latter. The acidic asphaltenes are phenols of higher molecular weight; they are insoluble in petroleum ether but soluble in benzene. The asphaltenes in general are cyclic substances and result from secondary reactions from the products formed by primary decomposition of the ... organic matter, and arise in part from the phenols of low molecular weight which are the primary products.

4375.   INVESTIGATION OF NATURE OF "ASPHALTOIDS" FROM IROHIC TARS.
Kozakov, B.I, and Grigoreva, K.Y   (Zh Frikl. Kim. (J appl. Chem. U.S.S.R.),
Jan. 1953. Vol. 26, 96-100).   Substances insoluble in petroleum ether
(300-650c) and soluble in benzene were yielded (13-19%) by low temperature
tars from peat and coal.   Tars were preliminarily dewaxed with acetone.
"Asphaltenes" can be divided into basic (11-15%) phenolic (53-60%), and
neutral (25-30%) components; analyses are given.   Their molecular weight
(280-570) is much less than that of asphaltenes from petroleum (ca 3000).
Tar "asphaltenes" have high content of nitrogen (1.7-2.7%) and oxygen
(13-14.7%).

T.F.

10-13-54 I.J.P.

GRIGOR'YEVA, K.V. (Moskva); KARAVAYEV, N.M. (Moskva)

Investigating carbonyl compounds of the middle fraction of
peat tar. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.4:166-
174 Jl-Ag '61.   (MIRA 14:8)
                        .(Carbonyl compounds)
                        (Chromatographic analysis)

GRIGOR'YEVA, K.V. (Moskva); KARAVAYEV, N.M. (Moskva)

Conditions for the selective recovery of neutral oxygen compounds
of peat tar. Izv.AN SSSR.Otd.tekh.nauk.Met.i topl. no.5:164-167
S-O '61.   (MIRA 14:10)

            (Oxygen compounds)   (Tar acids)

GRIGOR'YEVA, K.V. (Moskva); KARAVAYEV, N.M. (Moskva)

Investigation of neutral oxygen compounds of light fractions of peat tar. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.1:184-187 Ja-F '62.   (MIRA 15:2)
                        (Oxygen compounds)
                        (Peat tar)

KAZAKOV, Ye. I.; TYAZHELOVA, A. A.; MALASHENKO, L. P.;
    GRIGOR'YEVA, K. V.

    High-speed pyrolysis of vapor and gas products obtained in the
    semicoking of Ukrainian brown coals. Trudy IGI 17:34-42 '62.
                                        (MIRA 15:10)

    (Coal—Carbonisation)

KARAVAYEV, N.M., VENER, R.A.; GRIGOR'YEVA, K.V.

Water soluble acids from the oxidized coals of a permafrost zone.
Dokl. AN SSSR 161 no.5:1197-1200 Ap '65.   (MIRA 18:5)

1. Institut goryuchikh iskopayemykh, Moskva.

ALEKSEYEVA,A.; ANOKHIN, G.; BEZRUKOVA, M.; GONCHARENKO, O.;
        GRIGOR'YEVA, L.; KONSTANTINOV, G.; KAPITOLOV, L.; YAKUB, V.;
        SOBINOV, M.G., red.; AVRAMENKO, I., red.

[When trolls are sleeping; a story on how we became ac-
quainted with Norway] Kogda spiat trolli; rasskaz o tom, kak
my poznakomilis' s Norvegioi. Moskva, Molodaia gvardiia,
1964. 108 p.   (MIRA 17:7)

GRIGOR'YEVA, L., aspirantka

Susceptibility of wheat varieties to rusts. Zashch. rast.
ot vred. i bol. 10 no.10:56 '65.   (MIRA 18:12)

GRIGORYEVA, L.A.

USSR/Chemistry   Isomerization

Card   : 1/1   Pub. 151 - 18/33

Authors   : Venus-Danilova, E. D., Ryabtseva, V. I., and Grigoryeva, L. A.

Title   : Conversion of nonsymmetrical dimethyl-diphenyl-butinediol in an acid
                medium.   Part 4.- 2-Methyl-5,5-diphenyl-pentene-4-Ol-2-one-3

Periodical   : Zhur. ob. khim. 24/8, 1380 - 1390, August 1954

Abstract   : Experiments showed that the substance with melting point of 132 - 133°,
                formed as result of isomeric conversion of nonsymmetrical dimethyl-di-
                phenyl-butinediol under the effect of an alcohol sulfuric acid medium,
                has the structure of ethylene alpha-keto-alcohol 2-methyl-5,5-diphenyl-
                pentene-4-Ol-2-one-3 and not the structure of a diketone. The hitherto
                unknown products obtained as result of ozonization of the keto-alcohol,
                are described. The structure of unsaturated and saturated alpha-keto-
                alcohols was confirmed by their infrared and ultraviolet spectra.
                Seven references: 5 USSR, 1 USA and 1 German (1922 - 1950). Graphs.

Institution   : The Lensoviet Technological Institute, Leningrad

Submitted   : February 16, 1954

RAYKHSFEL'D, V.O.;GRIGOR'YEVA, L.A.

A yl(aryl)hydr quinolicarox. Part 3. Sy t   , ct t t
9(9-375 Je 'c4.   (:l   82.)

A i(aryl)hydr polysci a . at   i   Ir t '''''''''''''

1. Le u t   te c   y,   t t   u b t .

ACCESSION NR: AP4040477   S/0190/64/006/006/0988/0993

AUTHORS: Grigor'yeva, L. A.; Reykhsfel'd, V. O.

TITLE: Alkyl(aryl)hydropolysiloxanes. 4. Reaction kinetics of unsaturated compounds with dimethylmethylhydropolysiloxanes

TOPIC TAGS: siloxane, silicone, alkyl(aryl)hydropolysiloxane, methylstyrene siloxane interaction, methylmethacrylate siloxane interaction, Speier catalyst, chloroplatinic acid catalyst, rate of interaction, autocatalytic reaction character

ABSTRACT: This is a continuation of earlier work by the authors (Vy*sokomolek. soyed. 6, 969, 1964), and deals with the kinetics of interaction of α-methylstyrene and methylmethacrylate with dimethylmethylhydropolysiloxanes (DMMHPS) in the presence of chloroplatinic acid (Speier's catalyst). The rate of the process was determined by measuring the amount of active hydrogen which did not enter in the reaction. It was found that the addition process proceeded faster in an atmosphere of an inert gas than in oxygen, and that within a 3-20% concentration range of DMMHPS in α-methylstyrene the reaction rate remained practically constant.
Card 1/2

ACCCESSION NR: AP4040477

Experiments on the interaction of DMMHPS and α-methylstyrene at 30, 50, and 100C up to 160 minutes revealed that at 30C the reaction was practically dormant for the first 20 minutes. This fact the authors attribute to the time required for the reduction of chloroplatinic acid to platinum. In their opinion the reaction is of an autocatalytic character and proceeds in two stages. The first stage involves the formation of the catalyst, while during the second the vinyl derivative is linked to DMMHPS along the Si-H bond. It was found that the kinetics of the reaction satisfied an equation for a reaction of the first order and that the reactivity of α-methylstyrene considerably exceeded that of methylmethacrylate. The rate constants and the activation energies of the reactions were determined. Orig. art. has: 7 charts, 1 table, and 3 formulas.

ASSOCIATION: Leningradskiy tekhnologicheskiy institut im. Lensoveta (Leningrad Technological Institute)

SUBMITTED: 19Apr63   DATE ACQ: 06Jul64   ENCL: 00

SUB CODE: GC   NO REF SOV: 003   OTHER: 005

Card 2/2

LUBYANITSKIY, I.Ya.; GRIGOR'YEVA, L.A.; TUR'YAN, Ya.I.

Electroreduction of 6,6-nitrohydroxyiminohexanoic acid on the dropping mercury electrode. Zhur.fiz.khim. 35 no.12:2820-2821 D '61.

1. Lisichanskiy filial Gosudarstvennogo instituta azotnoy promyshlennosti.
                    (Hexanoic acid)
                (Reduction, Electrolytic)

L 10782-66   EWT(m)/EWP(j)   RM
ACC NR: AP6000007   UR/0080/65/038/011/2592/2594

AUTHOR: Grigor'yev, V.B.; Grigor'yeva, L.A.; Reykhsfel'd, V.O.;
Makovetskiy, K.L.; Smirnov, N.I.

ORG: Leningrad Institute of Technology im. Lensovet (Leningradskiy tekh-
nologicheskiy institut)

TITLE: Separation of polymer homologous mixtures in a thermogravitation-
al column

SOURCE: Zhurnal prikladnoy khimii, v.38, no.11, 1965, 2592-2594

TOPIC TAGS: silane, chemical separation, polymer

ABSTRACT: The article describes an attempt to apply a thermogravitation-
al column to the separation of some complex mixtures which cannot be
fractionated by other means, or only with great difficulty. In particu-
lar, the column was applied to polymer homologous mixtures obtained by
the addition of various unsaturated monomers to dimethylmethylhyropoly-
siloxanes, and also to the products of the cocyclotrimerization of
acetylenes--trisubstituted benzenes. The article gives a diagram of the
construction of the thermogravitational column. The distance between
plates was 0.3 mm, and the height of the working section of the column

Card   1/2   UDC: 541.6

L 10782-66

ACC NR: AP6000007

was 774 mm. The temperature difference between the walls of the column was 30° in the separation of products obtained by the addition of olefins to dimethylmethylhydropolysiloxanes, and 40° in the separation of mixtures of alkylarylbenzenes. Results of the experimental separations are shown in tables. These data indicate that separation in a thermogravitational column is well suited to separation of polymer homologous mixtures of large molecules which differ only slightly in their structure, and can also be recommended for the separation of very high boiling mixtures. Orig. art. has: 1 figure and 2 tables.

SUB CODE: 07/ SUBM DATE: 17Jan64/ ORIG REF: 003/ OTH REF: 008

Card   2/2

GRIGOR'YEV, V.B.; GRIGOR'YEVA, L.A.; REYKHSEL'D, V.O.; MAKOVETSKIY, K.L.;
     SMIRNOV, N.I.

     Separation of polymer homologous mixtures in a thermo-
     gravitation column. Zhur.prikl.khim. 38 no.11:2592-2595
     N '65.   (MIRA 18:12)

     1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
     Submitted January 17, 1964.

GRIGOR'YEVA, L.F.

Correlation between the optical anomalies and the behavior of corundum in various mechanical processes. Trudy Inst.krist.no.8:261-272 '53.

(MLRA 7:5)

(Corundum)

GRIGOR'YEVA, L.F.

KUL'BERG, L.M.; MOLOT, L.A.; GRIGOR'YEVA, L.F.

Persulfate-cobaltic method for the determination of manganese and chromium in steels and cast iron, from one weighed portion. Zhur.anal.khim. 8 no.6: 370-372 N-D '53.
(MLRA 6:11)

1. Saratovskiy gosudarstvennyy universitet im. N.G.Chernyshevskogo, zavod "Serp i Molot."   (Steel--Analysis) (Iron--Analysis)

GRIGORYEVA, I. N.

Dissertation: "Phenolformaldehyde Resins at Various Stages of Hardening and Materials for Pressing in Their Bases as Dielectrics." Cand Tech Sci, Moscow Chemicotechnological Inst, Moscow, 1954. Referativnyy Zhurnal—Khimiya, Moscow, No 8, Apr 54.

SO: SUM 294, 26 Nov 1954

GRIGOR'YEVA, L.F.

Glue instead of metallic solder for joining glass and metal in medical apparatus. Med.prom. 13 no.1:51-53 Ja '59.
(MIRA 12:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskogo instrumentariya i oborudovaniya.
(MEDICAL INSTRUMENTS AND APPARATUS) (GLASS--METAL SEALING)

24.7400
94 (2)

67908
SOV/20-129-5-14/64

AUTHORS: Kachalov, N. N., Corresponding Member,
Academy of Sciences, USSR, Grigor'yeva, L. F.

TITLE: The Dependence of the Process of Grinding Crystals on Their
Physical and Mechanical Properties

ABSTRACT: The present paper deals with a number of materials much used in
industry, viz. with single crystals of germanium, quartz, and
corundum as well as with polycrystalline compounds with zinc
blends structure ($GaAs$, Ga_2Se_3, $ZnSe$, $InSb$, In_2Te_3, $CdTe$, $InAs$,
$CdSe$, $GaSb$), which are crystallo-chemical analogs of germanium
and silicon. The grinding process is characterized by 3 main
factors namely by reproducibility, the thickness of the relief
layer, and by the thickness of the destroyed layer. The
germanium- and silicon samples were ground along the planes
(111), (110), and (100), and corundum along the planes $(11\bar{2}0)$
and (0001). In quartz, the plates of Z- and X-sections were
investigated. Micropowders of diamonds, boron carbide, silicon
carbide, and electrocorundum served as abrasive powders. The

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The Dependence of the Process of Grinding Crystals on   SOV/20-129-5-14/64
Their Physical and Mechanical Properties

                results obtained by individual experiments deviated by never
more than 12% from their mean values. In order to be able to
investigate the dependence of the grinding process on the
properties of the materials to be ground, such physical and
mechanical properties were determined as are correlated with
their strength and structure. The elastic constants (shear
coefficient, Young's modulus, and Poisson's coefficient) were
determined by means of a device of the type UIZS-5 from the
velocity of the passage on longitudinal and transversal
ultrasonic waves. Microhardness was measured by means of a
device of the type PMT-3 and the microhardness in stripping,
as well as the microstrength during fracture and the criterion
of brittleness were determined according to the method
developed by N. K. Dertev (Ref 3). The brittleness or
plasticity of the materials investigated was characterized by
means of a brittleness criterion developed by G. V. Uzhik
(Ref 14). The method of reciprocal grinding developed by
V. D. Kuznetsov (Ref 15) and the results obtained by B. F.

Card 2/4   Ormont (Ref 16) are then mentioned. The physical and mechanical

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The Dependence of the Process of Grinding Crystals on
Their Physical and Mechanical Properties

67908
SOV/20-129-5-14/64

properties of the materials investigated vary within wide limits.
Thus, one finds: $N = K_4/H^n$, $h = K_5/H^{n_1}$, $N = K_6/R^{n_2}$; $h = K_7/h^{n_3}$,
$N = K_8/(G - K_0)$; $h = K_9/G$. Here N denotes the coefficient of
"volume grindability", h - the thickness of the relief-like
layer of the materials investigated, R - microstrength in the
case of fracture, and G - the shear modulus. K_4, K_5, K_6, K_7, K_8,
K_9, K_0, n, n_1, n_2 and n_3 are constant coefficients. Materials
with a brittleness criterion $T \leqslant 1$ do not satisfy the afore-
mentioned relations. The above-mentioned functions are similar
to the relations determined by F. K. Aleynikov (Ref 5) for
glass. The similarity between the properties of the brittle
state of the crystalline materials investigated and those of
glass is responsible for the similarity in the character of their
grinding processes. There are 2 figures, 2 tables, and
16 references, 14 of which are Soviet.

Card 3/4

67908

The Dependence of the Process of Grinding Crystals on   SOV/20-129-5-14/64
Their Physical and Mechanical Properties

ASSOCIATION: Institut khimii silikatov Akademii nauk SSSR (Institute of
                Silicate Chemistry of the Academy of Sciences of the USSR)

SUBMITTED: July 23, 1959

Card 4/4

GRIGOR'YeVA, L.F., Cand Tech Sci - - (diss) Relationship of
the indices for the process of polishing crystals to their
physico-mechanical properties," Leingrad, 1960, 17 pp (Leningrad
Technological Institute im Lensovet) (KL, 34-60, 122)

KACHALOV, N.N.; GRIGOR'YEVA, L.F.

Features of the process of grinding certain crystalline materials.
Inzh.-fiz.zhur. no.1:35-40 Ja '60.   (MIRA 13:4)

1. Institut Khimii silikatov.AN SSSR, Leningrad.
        (Grinding and polishing)   (Crystals)

S/170/60/003/02/06/026
B008/B005

AUTHOR: Grigor'yeva, L. F.

TITLE: The Effect of Certain Physicomechanical Properties of Crystals on Their Grinding Process

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol. 3, No. 2, pp. 36-40

TEXT: The dependence of the grinding indices on the physicomechanical properties of the material to be ground was investigated. Quantitative relations (Figs. 1 and 2) which can be used to rationalize the grinding technique were determined for substances with a coefficient of brittleness between 4.4 and 1.0. The investigation included crystals of corundum, quartz, silicon, germanium, polycrystalline compounds with the structure of zinc blende (GaAs, Ga_2Se_3, ZnSe, InSb, In_2Te_3, CdTe, InAs, CdSe, GaSb). They are crystallochemical analogs of germanium and silicon. The methods of N. K. Dertev (Ref. 3), V. D. Kuznetsov (Ref. 13), as well as data found by G. V. Uzhik (Ref. 12) were applied. The physicomechanical characteristics of the

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The Effect of Certain Physicomechanical   S/170/60/003/02/06/026
Properties of Crystals on Their Grinding Process   B008/B005

substances investigated are compiled in Table 1. It results that the physico-
mechanical properties, particularly the coefficients of brittleness, change
within a wide range. Similar rules were ascertained on comparing the in-
vestigation results with the data found for various glasses by F. K. Aley-
nikov (Refs. 5 and 15). The paper by B. F. Ormont (Ref. 14) is mentioned.
There are 2 figures, 1 table, and 15 references, 13 of which are Soviet.

ASSOCIATION: Institut khimii silikatov, g. Leningrad (Institute of Silicate
                Chemistry, City of Leningrad)

Card 2/2

GRIGOR'YEVA, L. Y.

Stable stain for glass. Nov. med. tekh. no.2:86-87 '61.
(MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh
instrumentov i oborudovaniya.

(STAINS AND STAINING(MICROSCOPY))

GRIGOR'YEVA, L. F.

Use of sealing agents in medical instruments and apparatus, Nov.
med. tekh. no.3:63-66 '61.   (MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh
instrumentov i oborudovaniya.

(MEDICAL INSTRUMENTS AND APPARATUS)

15 8500

20485
S/191/61/000/003/003/015
B124/B203

AUTHORS: Kanavets, I. F., Grigor'yeva, L. F.

TITLE: Dielectric properties of phenol formaldehyde resins in various stages of hardening

PERIODICAL: Plasticheskiye massy, no. 3, 1961, 15-20

TEXT: The authors investigated novolak resins of brand 18, resols of brand 21-C (21-s), and aniline phenol formaldehyde resols of brand 211. Density, hardness, and water resistance increase with hardening, and the dielectric properties of resins are improved. The electric properties of the various resin types, as well as those of one type in the resol, resitol, and resite stages, are different (Table 1). Figs. 1 and 2 show the change in electric properties during hardening; Q_v changes proportionally with the change in weight, tanδ and ε according to an exponential function. With an increase in the moisture content of the resin, Q_v drops while tanδ and ε rise. The presence of the NH group effects lower polarity and hygroscopicity of aniline phenol formaldehyde resins as compared with phenol

Card 1/10

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S/191/61/000/003/003/015
B124/B203

Dielectric properties of phenol...

formaldehyde resins. The following relation holds for the dependence of volume resistivity on the degree of hardening of resins, on temperature, and the content in volatile components: $Q_v = (Ax + C)e^{-U/kT}$ (1), where U, A, and C are material constants depending on the chemical nature of the resin and on the production formula (U is the activation energy a charged particle must assume under the action of temperature and electric field to surpass the potential barrier), x is the change in weight within $\pm 3\%$ caused by moisture and volatile components. The activation energy rises from 15.2 kcal/mole/degree in the resol stage to 17.5 in the resitol, and 19.3 kcal/mole/degree in the resite stage. The 21-s resol resin and the novolak 18 resin are characterized by curves rising with temperature for tanδ and ε until reaching a maximum according to the equations:

$\tan \delta = B \cdot e^{-U/kT}$ (2) and $\varepsilon = \varepsilon_\infty + B \cdot e^{-2U/kT}$ (3). The change in tanδ of resin 211 as a function of temperature and content in volatile substances in the curve section before passing the maximum is characterized by the equation: $\tan \delta = A(x + a)^n \cdot e^{-U/kT}$ (4), where A, a, and n are material

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S/191/61/000/003/003/015
B124/B203

Dielectric properties of phenol...

constants. The change in tanδ of resin 18 as dependent on the increase in weight of specimens is given in Table 2. At normal temperature, tanδ and ε up to a field tension of 2 kv/mm do not depend on the latter; at 120°C, they rise with the field tension (Fig. 6). The following equation holds for the breakdown strength of resins in the region of breakdown due to

thermal instability (above 60°C): $E = (Mx + C)e^{-\beta(t-t_0)}$ (5), where M, C, and β are material constants, x is the change in weight due to the loss in moisture and volatile components in %, t_0 is the temperature at which

the breakdown voltage is strongly reduced, and t is the test temperature. The electric strength of resins changes as a function of the change in weight of resins during hardening, and of temperature (Figs. 7 and 8). The electric strengths calculated from Eq. (5) are in good agreement with the value experimentally found for 21-s resins. P. A. Kremlevskiy, S. Ya. Yamanov, I. A. Maygel'dinov, and P. N. Shcherbak are mentioned. There are 8 figures, 3 tables, and 9 Soviet-bloc references.

Card 3/10

KANAVETS, I.F.; GRIGOR'YEVA, L.F.

Dielectric properties of articles made of molding compositions based
on phenol-formaldehyde and aniline-phenol-formaldehyde resins. Plast.
massy no.6:13-20 '61.   (MIRA 14:5)
        (Phenol condensation products)   (Dielectrics)

TOTESH, A.S.; GRIGOR'YEVA, L.F.; STREL'TSINA, M.M.

    Some features of the surface structure of vertical-drawn plate
glass. Stek. i ker. 18 no.7:12-14 Jl '61.   (MIRA 14:7)
                   (Plate glass)

GRIGOR'YEVA, L.F.

GIRGOR'YEVA, L.F.

Protection of medical equipment mado of aluminum and its alloys from
corrosion. Med. prom. 16 no.3:47-48 Mr '62.   (MIRA 15:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut moditsinskikh
instrumentov i oborudovaniya.
   (MEDICAL INSTRUMENTS AND APPARATUS--MAINTENANCE AND REPAIR)
               (ALUMINUM--CORROSION)

L 38494-65   EPF(c)/EPR/EWP(j)/EWT(m)/EWF(b)/EWT(t)   Fc-4/Pr-4/Ps-4   IJP(c)

EM/JD/JD   S/0000/63/000/000/0180/0190

ACCESSION NR: AT5C07733

AUTHOR: Fedoseyev, A.D.; Grigor'yeva, L.F.; Krupennikova, Z.V.

TITLE: Synthesis and study of fibrous minerals of the type of amphibole asbestos

SOURCE: AN SSSR. Institut khimii silikatov. Silikaty i okisly v khimii vysokikh temperatur (Silicates and oxides in high-temperature chemistry). Moscow, 1963, 180-190

TOPIC TAGS: fibrous mineral, asbestos, synthetic amphibole, amphibole composition, amphibole optical property, fluorcupferrite, fluortremolite, fluxing agent, mineralizer, richterite

ABSTRACT: The authors studied the conditions of formation of amphiboles having a fibrous texture by synthesizing the simplest representatives of this group of minerals: fluorcupferrite $Mg_7(Si_4O_{11})_2F_2$ and fluortremolite $Ca_2Mg_5(Si_4O_{11})_2F_2$. Two methods of synthesis, using oxides and fluorides as the starting materials (amorphous SiO_2, MgO, CaO, MgF_2, CaF_2), were employed: with and without the use of fluxing agents (mineralizers). Finely fibrous asbestos-type amphiboles could be prepared only by using the mineralizers. The most reproducible results were obtained when the mineralizer content was 15-50% of the total. The optimum temperature conditions for the crystalliza-tion of fibrous amphiboles were also determined. The synthetic fluorine-magnesium

Card 1/2

L 38494-65

ACCESSION NR: AT5007733   4

richterite was shown to be very close in composition to theoretical richterite. The fluorine-magnesium richterite was analyzed thermographically, and the changes occurring on heating were studied by optical and x-ray methods. "The optical constants of synthetic amphibole were determined by G. A. Rozhkova using the rotating needle method. The chemical composition of synthetic amphiboles was determined by K. G. Gileva, N. Ye. Kalinina and Ye. G. Khomutova in the analytical laboratory of the IKhS AN SSSR, using a microchemical method". Orig. art. has: 5 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 0000063   ENCL: 00   SUB CODE: MT

NO REF SOV: 007   OTHER: 018

Card 2/2 ms   2/2

L 7694-66   EWT(m)/EWP(1)   RM

ACC NR: AP5028736   SOURCE CODE: UR/0363/65/001/011/2031/2038

AUTHOR: Fedoseyev, A. D.; Grigor'yeva, L. F.; Chigareva, O. G.; Krupenikova, Z. V.;
Rozhnova, G. A.

ORG: Institute of Silicate Chemistry im. I. V. Grebenshchikov, Academy of Sciences,
SSSR (Institut khimii silikatov, Akademii nauk SSSR)

TITLE: Asbestos type synthetic fibrous fluosilicates, their properties and potential
uses

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 11, 1965,
2031-2038

TOPIC TAGS: asbestos product, synthetic fiber, fluoroamphibole, fluosilicate, fiber
crystal, crystallization, thermal stability, tensile strength, heat resistance,
chemical stability

ABSTRACT: Certain experimental data are presented on the preparation and properties
of the fibrous fluoroamphiboles. The data were obtained in a systematic study of
asbestos-type fibrous silicates, which has been conducted at the Institute of Silicate
Chemistry, AN SSSR. This study was prompted by the recently developed interest in
synthetic asbestos materials which may be substituted for natural asbestos and may
also find new technical applications because of the widely varied composition and
properties. The data presented concern crystallization from fluxed melt of the fluoro-

Card 1/2   UDC: 54-114

L 7694-66

ACC NR: AP5028736   2

amphiboles of the general formula: $X_{2-3}Y_5[Si_4O_{11}]_2(F, Cl, OH)_2$ where X is Na^+ and Y is Mg^{2+}, Mg^{2+} and Fe^{3+}, Mg^{2+} and Ni^{2+}, Mg^{2+} and Co^{2+}, or Mg^{2+} and Cr^{2+}. Moreover, a lithium-magnesium fluoroamphibole was synthesized. The effects were determined of temperature (850—1050C) and fluorine content in the charge on the habit and mineralogical composition of the fluoroamphibole crystals. The conditions were optimized for obtaining the highest content of the fibrous variety in the product. Crystal optical constants and parameters of the unit cell were determined for the six synthesized fluoroamphiboles. A comparative study was made of the thermal, mechanical, and chemical properties of the fluoroamphiboles and some natural asbestos. Thermal stability of the fluoroamphiboles was found to be 100—150C higher than that of the natural amphibolic asbestos. The chromium fluoroamphibole was the most stable. Acid- and alkali-resistance of the fluoroamphiboles, except the lithium-magnesium fluoroamphiboles, was equivalent to that of a natural asbestos. Tensile strength, the most important characteristic, was found to be of the same order of magnitude in synthetic fluoroamphiboles as in natural asbestos of various origin and in whiskers of refractory oxides. Tensile strength decreased after heat treatment at a temperature of 150 to 200C higher in the fluoroamphiboles than in a natural asbestos. The potential uses of the synthetic fluoroamphiboles include industrial filters, fillers in rubber products and thermally resistant glues, gaskets in high-pressure or high-vacuum apparatus, fire protective and heat insulating materials, and structural reinforcing fillers in the new [unnamed] materials. Orig. art. has: 1 figure and 6 tables.   [JK]

SUB CODE: MT/ SUBM DATE: 31May65/ ORIG REF: 007/ OTH REF: 010/ ATD PRESS: 4142

Card 2/2

L 4021-66   EWP(e)/EWT(m)/EWP(1) WH
ACCESSION NR: AP5022276   UR/0363/65/001/007/1221/1228
                                           54-114

AUTHOR: Nadgornyy, E. M.; Grigor'yeva, L. F.; Ivanov, A. P.

TITLE: Mechanical properties of synthetic fibrous fluor-amphiboles and certain
natural asbestoses

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 7, 1965,
1221-1228

TOPIC TAGS: asbestos, fluoride mineral, fiber crystal

ABSTRACT: Mechanical properties of crocidolite asbestos from an African
deposit, anthophyllite asbestos from the Sysert' deposit, chrysotile asbestos
from the Bazhenovo deposit, and two types of synthetic fibrous fluor-amphiboles
(lithium fluor-amphibole and magnesium fluor-richterite) were investigated.
Values of the tensile strength and stress-strain diagrams for fibers of various
diameters were obtained for each material. From these diagrams, a qualitative
estimate of Young's modulus in the direction of the tension is made. Analytical
relations are derived which permit the calculation of the strength of fibers of
various diameters. It is found that several mechanical properties of natural
asbestoses and synthetic fluor-amphiboles (high tensile strength, dependence of
Card   1/2

L 4021–66
ACCESSION NR: AP5022276

strenth on diameter) are identical to the properties of filamentary crystals
(whiskers). Certain differences in the mechanical properties of the fibers of these
materials are apparently due to structural differences. A possible mechanism of the
rupture of fibers of natural asbestoses and synthetic fluor-amphiboles is discussed.
"The authors thank A. V. Stepanov, Doctor of Mathematical Sciences, and A. D.
Fedoseyev, Doctor of Technical Sciences, for their joint review of the results."
Orig. art. has: 8 figures, 3 tables, and 5 formulas.

ASSOCIATION: Institut khimii silikatov im. I. V. Grebenshchikova Akademii nauk
SSSR (Institute of Silicate Chemistry, Academy of Sciences SSSR)

SUBMITTED: 02Mar65   ENCL: 00   SUB CODE: MT

NO REF SOV: 009   OTHER: 005

Card 2/2

L 11872-66   EWT(m)/EWP(e)/EWP(b)   WW/WH

ACC NR: AT6002240   SOURCE CODE: UR/2564/65/006/000/0105/0110

AUTHOR: Grigor'yeva, L. F.; Rozhnova, G. A.; Fedoseyev, A. D.

ORG: none

TITLE: Mechanism and kinetics of crystallization of fibrous silicates from melts

SOURCE: AN SSSR. Institut kristallografii. Rost kristallov, v. 6, 1965, 105–110

TOPIC TAGS: crystallization, crystal growth, nonstructural mineral product, silicate

ABSTRACT: The crystallization of amphiboles was studied during their synthesis at 500 — 1100C from mixtures corresponding to the theoretical formula $Na_2Mg_6Si_8O_{22}F_2$ and containing mineral fluxes. The experiments showed that the gas phase plays an important part in the crystallization of amphibole fibers from melts. A study of the effect of the temperature gradient (in which the cooling rate of the furnace was varied between 220 and 1 degree per hour) revealed that long amphibole fibers crystallize in the presence of the temperature gradient at the level of the crucible and primarily in the zone of high temperatures. At high cooling rates, the mineralogical composition of the synthesized products changes somewhat: the amount of mica and glass increases, and the amphibole fibers become thicker and less elastic. It is concluded that the growth of

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L 11872-66

ACC NR: AT6002240

amphibole fibers is supplied by the gas phase as well as the melt, which is a solution of the main components in the eutectic mixture $NaCl-Na_2CO_3$. In addition to helping elucidate the mechanism of crystallization of fibrous amphiboles, the results enabled the authors to select optimum conditions for a reproducible synthesis of high yields of amphibole fibers up to 20 — 25 mm long. Authors express their deep appreciation to D. P. Grigor'yev, V. B. Tatarskiy, and T. G. Petrov for a joint discussion of the results and helpful suggestions. Orig. art. has: 4 figures.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 001/ OTH REF: 007

jw
Card 2/2

VELIKOSLAVINSKAYA, O.I.; GRIGOR'YEVA, I.F.; BUKIN, V.N.

Chemical method for determining vitamin B_{12} in bacterial
biomass and culture liquids. Prikl. biokhim. i mikrobiol.
1 no.2:155-162 Mr-Ap '65.   (MIRA 18:11)

1. Tekhnologicheskiy institut pishchevoy promyshlennosti,
Moskva.

GRIGOR'YEVA, L.F.

Gluing of blocks of different metals subjected to machining.
Nov. med. tekh. no.1:92-93 '62.   (MIRA 19:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh
instrumentov i oborudovaniya.

FEDOSEYEV, A.D.; GRIGOR'YEVA, L.F.; CHIGAREVA, O.G.; KRUPENIKOVA, Z.V.;
        ROZHNOVA, G A.

        Synthetic fibrous asbestos-type fluosilicates, their properties
        and prospects for utilization. Izv. AN SSSR. Neorg. mat. l
        no.11:2031-2038 N '65.   (MIRA 18:12)

        1. Institut khimii silikatov imeni I.V. Grebenshchikova
        AN SSSR. Submitted May 31, 1965.

L 22960-66   EWP(j)/EWT(m)/EWP(e)   RM/AH

ACC NR: AP6013353   SOURCE CODE: UR/0363/66/002/004/0761/0763

AUTHOR: Nadgornyy, E. M.; Grigor'yeva, L. F.; Ivanov, A. P.

ORG: Institute of the Chemistry of Silicates im. I. V. Grebenshchikov, Academy of Sciences SSSR (Institut khimii silikatov Akademii nauk SSSR)

TITLE: The effect of heat treatment on mechanical properties of natural and synthetic amphibole fibers

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 2, no. 4, 1966, 761-763

TOPIC TAGS: asbestos product, synthetic fiber, fluoroamphibole fiber, heat resistance, tensile strength

ABSTRACT: The relative tensile strength at room temperature has been determined in fibers of synthetic lithium-magnesium fluoroamphibole $Li_2 Mg_6 [Si_8 O_{22}] F_2$, synthetic fluororichterite $Na_2 Mg_6 [Si_8 O_{22}] F_2$, and natural crocidolite asbestos which were heat-treated at a temperature in the 200–800C range. These determinations were necessary to supply data on the effect of heat treatment on mechanical properties of the fibers which are important for high temperature technology because of their high heat resistance. All data in this study were related to the fibers of 1.5 μ in diameter.

Card 1/2   UDC 666.3

L 22960-66

ACC NR: AP6013353

The data showed that the relative tensile strength σ/σ^0 (where σ^0 is tensile strength of untreated fiber) of a fiber heat-treated at a given temperature was independent of the time of heat treatment within a 3—48 hr range. The σ/σ^0 value of the crocid-olite fibers started to decrease when heat-treatment temperature exceeded 250C, while the σ/σ^0 value of the synthetic fluoroamphibole fibers started to decrease only after heat-treatment at 400—450C. The cause of this decrease in strength could not be ascertained by crystallooptical, x-ray, or chemical analysis of heat-treated fibers. Further study is in progress on the kinetics of the decrease in strength and changes in texture of the heat-treated fibers. Orig. art. has: 1 figure. [JK]

SUB CODE: 11/ SUBM DATE: 31Jul65/ ORIG REF: 004/ OTH REF: 001/ ATD PRESS 4237

Card 2/2

KHITROVA, A.P., kand. sel'skokhoz. nauk; GRIGOR'YEVA, L.I., aspirantka

Wheat rust in irrigated fields. Zashch. rast. ot vred. i bol.
9 no.7:14-15 '64.   (MIRA 18:2)

27163
S/057/61/031/009/003/019
B109/B138

24.6714

AUTHORS: Chechkin, V. V., Vasil'yev, M. P., Grigor'yeva, L. I.,
Smerdov, B. I.

TITLE: Absorption of cyclotron oscillations in a heterogeneous
plasma

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 9, 1961, 1033-1035

TEXT: Apparatus and results of measurement are described for the absorp-
tion of high-frequency energy in a hydrogen plasma produced in a quartz
tube (5.5 cm diameter, 100 cm length) by a Penning discharge. Capacitor
2 microfarads, charged to 5 kv, maximum discharge time did not exceed a
few microseconds. The plasma was under the action of a longitudinal mag-
netic field, also produced by a capacitor discharge to a solenoid
(18 milliseconds quasisteady, $10^4 - 1.6 \cdot 10^4$ gauss). Measurements were made
in the time interval of 300 - 1,000 microseconds after ignition of the
plasma discharge. The plasma oscillations were excited by a 10.7 Mcps,
300-w coil (axial period $\lambda = 11$ cm) as described by G. N. Stix (Phys.

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27163
S/057/61/031/009/003/019
B109/B138

Absorption of cyclotron ...

Fluids, 1, 308, 1958); the coil was pushed onto the quartz tube. Fig. 1 shows the results of measurement: dependence of the high-frequency power absorbed in the plasma on the magnetic field strength at various moments after discharge ignition, i.e., at different ion densities (hydrogen pressure $6 \cdot 10^{-3}$ mm Hg). The authors interpret the course of the curve stating that the cyclotron oscillations with high densities are excited in the peripheral plasma layer and, moving to the axis, meet a layer with critical ion density, where they are absorbed. Fig. 2 shows this dependence for $1.3 \cdot 10^{-3}$ mm Hg; here, the ion density in the discharge is considerably lower, and cyclotron oscillations can be excited in the region of $H = H_0$ only. In all experiments, the ion temperature in the plasma hardly exceeded 1 ev. Under such conditions the cyclotron damping with H values where absorption occurs, is no longer important cf. R. Z. Sagdeyev, V. D. Shafranov (Fizika plazmy i problema upravlyayemykh termoyadernykh reaktsiy, IV, 430, 1958). But the absorption caused by collisions between unequal particles should still be very considerable. The authors thank K. D. Sinel'nikov, Academician AS UkrSSR, V. T. Tolok, and K. N. Stepanov

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Absorption of cyclotron ...

27163
S/057/61/031/009/003/019
B109/B138

for discussing the work.   There are 2 figures and 5 references: 2 Soviet-bloc and 3 non-Soviet-bloc.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR Khar'kov
(Physicotechnical Institute AS UkrSSR, Khar'kov)

SUBMITTED: September 10, 1960

Fig. 1.   Dependence of the absorbed power on the magnetic field strength.

Legend: The scale on the ordinate is given in relative units.   The broken line denotes the magnetic field strength corresponding to the cyclotron resonance of an individual ion.   1 - 300 μsec after the beginning of discharge; 2 - 400; 3 - 500; 4 - 600; 5 - 700; 6 - 800; 7 - 900; 8 - 1,000 μsec.

Fig. 2.   The same as in Fig. 1 for $1.3 \cdot 10^{-3}$ mm Hg.   1 - 300; 2 - 400; 3 - 500; 4 - 600; 5 - 700 μsec.

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ACCESSION NR: AT4036046   S/2781/63/000/003/0096/0109

AUTHORS: Vasil'yev, M. P.; Grigor'yeva, L. I.; Dolgopolov, V. V.;
Smerdov, B. I.; Stepanov, K. N.; Chechkin, V. V.

TITLE: Absorption of high-frequency energy by a plasma near ion
cyclotron resonance. I.

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo
termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i prob-
lemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and
problems of controlled thermonuclear synthesis); doklady* konferen-
tsii, no. 3. Kiev, Izd-vo AN UkrSSR, 1963, 96-109

TOPIC TAGS: cyclotron resonance phenomena, plasma heating, plasma
thermal excitation, plasma magnetic field interaction, microwave
plasma

ABSTRACT: Cyclotron absorption of electromagnetic waves excited by

Card   1/3

ACCESSION NR: AT4036046

current flowing in a coil surrounding a plasma cylinder are consi-
dered. The heating of a plasma by cyclotron excitation of strongly
damped (ordinary) and weakly damped (extraordinary) waves is dis-
cussed. General expressions are derived for the power absorbed by
the plasma (for the energy flux inside the plasma per unit length
of the plasma cylinder). Since the general expressions are rather
complicated, a few limiting cases are considered, namely when the
wave frequency is close to the ion cyclotron frequency, high ion-gas
temperature, long-wave oscillations, and short-wave oscillations.
The case of a low density plasma is also considered. Other topics
touched upon are the influence of collisions on the heating of the
plasma, the excitation of weakly damped (extraordinary waves in a
plasma cylinder, and the heating of a plasma consisting of a mixture
of two species of ions (such as deuterium and tritium. Orig. art.
has: 2 figures and 24 formulas.

ASSOCIATION: None

Card   2/3

ACCESSION NR: AT4036046

SUBMITTED: 00   DATE ACQ: 21May64   ENCL: 00

SUB CODE: ME   NR REF SOV: 011   OTHER: 004

Card   3/3

ACCESSION NR: AT4036047   S/2781/63/000/003/0109/0117

AUTHORS: Brzhechko, M. V.; Vasil'yev, M. P.; Grigor'yeva, L. I.;
Dolgopolov, V. V.; Loginov, A. S.; Pavlichenko, O. S.; Smerdov, B. I.;
Stepanov, K. N.; Chechkin, V. V.

TITLE: Absorption of high-frequency energy by a plasma near ion
cyclotron resonance, II.

SOURCE: Konferentsiya po fizike plazmy* i problemam upravlyayemogo
termoyadernogo sinteza. 3d, Kharkov, 1962. Fizika plazmy* i prob-
lemy* upravlyayemogo termoyadernogo sinteza (Plasma physics and
problems of controlled thermonuclear synthesis); doklady* konferen-
tsii, no. 3, Kiev, Izd-vo AN UkrSSR, 1963, 109-117

TOPIC TAGS: cyclotron resonance phenomena, plasma heating, plasma
thermal excitation, plasma magnetic field interaction, microwave
plasma, discharge plasma, plasma source

Card 1/4

ACCESSION NR: AT4036047

ABSTRACT: This is the second part of a two-part paper and is de-
voted to an experimental check on the absorption of high-frequency
energy by a plasma under conditions of ion cyclotron resonance, and
a check on the theoretical deductions of the first part of the pa-
per. The system used to feed the high-frequency power into the
plasma is an artificial LC line fed at a high harmonic. This system
is claimed to have several advantages over others. The source of
high-frequency power was a self oscillator specially developed for
the excitation of the line. The plasma was produced by a pulsed
Penning discharge in a magnetic field in hydrogen (H $\leq$ 0.8 Tesla).
Considerable loading of the generator by the plasma took place near
ion cyclotron resonance, accompanied by an increased intensity of
the glow of the H_β line in the discharge. The shift in the maxima
of the load curve away from the resonant value of the magnetic field,
and also the form of this curve, are in agreement with the results
of the theoretical part of the paper. The system for the supply of
the high-frequency energy to the plasma and the experimental setup

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ACCESSION NR: AT4036047

are described in detail. It is pointed out that since the plasma
temperature did not exceed 10^4 K in the experiments, the ion cyclo-
tron damping is negligibly small and the absorption of high-frequency
energy is only due to the collision between the ions and the elec-
trons. The Penning discharge used in the investigation was not found
to be as efficient as that elsewhere. The data offer evidence that
the LC line is a highly effective system of transmitting high-fre-
quency energy from the generator to a plasma in the case of ion cy-
clotron resonance. "The authors are grateful to K. D. Sinel'nikov
and V. T. Tolok for a discussion of the work. Orig. art. has: 6
figures and 7 formulas.

ASSOCIATION: None

SUBMITTED: 00   DATE ACQ: 21May64   ENCL: 01
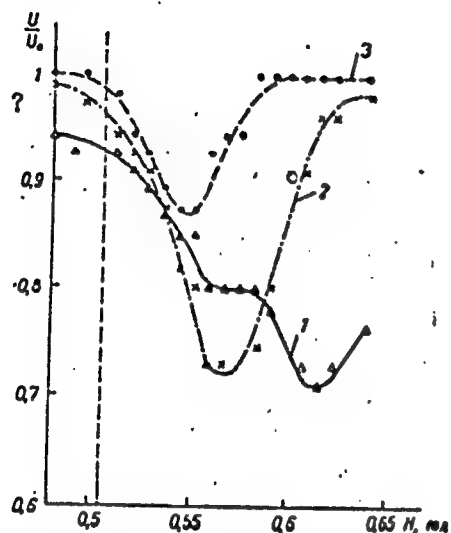
SUB CODE: ME   NR REF SOV: 003   OTHER: 002

Card   3/4

ACCESSION NR: AT4036047

ENCLOSURE: 01

Card 4/4

Dependence of the amplitude of the high-frequency voltage on the line (in relative units) on the magnetic field intensity at differnt instants of time following the discharge ignition: 1 - 200 µsec, 2 - 300 µsec, 3 - 400 µsec.

ACCESSION NR: AP4040297   S/0057/64/034/006/0974/0983

AUTHOR: Vasil'yev,M.P.; Grigor'yeva,L.I.; Dolgopolov,V.V.; Smerdov,B.I.; Stepanov,
K.N.; Chechkin,V.V.

TITLE: On the absorption of high frequency energy by a plasma at frequencies near
ion cyclotron resonance. 1.

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.6, 1964, 974-983

TOPIC TAGS: plasma, plasma heating, cyclotron resonance phenomena, electromagnetic
wave absorption

ABSTRACT: The absorption of electromagnetic waves by a plasma at frequencies near
the ion cyclotron resonance, discussed by T.H.Stix (Phys.Rev.106,1146,1957) as a
means for heating a plasma, is treated theoretically for a cylindrical plasma fila-
ment of constant density. The high frequency electromagnetic field is assumed to be
produced by traveling waves in a helical winding surrounding the plasma filament.
The slight modifications required when the excitation is by standing waves in the
helix are derived in an appendix. Damping both by ion collision and by cyclotron
absorption, the process inverse to cyclotron radiation (magnetic bremsstrahlung),

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ACCESSION NR: AP4040297

are included in the treatment. A general expression for the energy flux is derived, and this is simplified and discussed in more detail for a number of limiting cases. The curve of absorption versus frequency is asymmetric, and the maximum absorption occurs at a frequency somewhat less than the Larmor frequency. The absorption of the slightly damped extraordinary wave is discussed. This can become important when the skin depth is too small to permit adequate penetration of the ordinary wave. The resonance, however, is very sharp, and it might be difficult to maintain adequate frequency control. Excitation of a plasma containing two ion species at the Larmor frequency of one of them produces a relative motion of the two ion species of the type discussed by S.J.Buchsbaum (Phys.Fl.3,418,1960) in connection with the low frequency hybrid resonance. "The authors express their deep gratitude to A.I. Akhiyezer and K.D.Sinel'nikov for valuable advice and discussions of the work." Orig.art.has: 40 formulas and 3 figures.

ASSOCIATION: none

SUBMITTED: 16Mar63   DATE ACQ: 18Jun64   ENCL: 00

SUB CODE: ME   NR REF SOV: 008   OTHER: 004

Card 2/2

ACCESSION NR: AP4040298   S/0057/64/034/006/0984/0992

AUTHOR: Vasil'yev,M.P.; Grigor'yeva,L.I.; Dolgopolov,V.V.; Smerdov,B.I.; Stepanov, K.N.; Chechkin,V.V.

TITLE: Experimental investigation of the absorption of high frequency energy by a plasma at frequencies near cyclotron resonance. 3.

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.6, 1964, 984-992

TOPIC TAGS: plasma, plasma heating, cyclotron resonance phenomena, electromagnetic wave absorption, hydrogen plasma

ABSTRACT: The absorption of high frequency energy by a hydrogen plasma at frequencies near the ion cyclotron resonance was investigated experimentally. The plasma was formed by discharge of a 6 microfarad capacitor, charged to 3 to 5 kV, between two cathodes at the ends of an 88 cm long 6 cm diameter discharge tube and an annular anode located 6 cm from one of the cathodes. The period of this system was 35 microsec. A longitudinal magnetic field up to 6.5 kOe was produced by discharge of a 0.006 farad capacitor bank through an appropriate solenoid. The period was 18 millisec, and the field could be considered constant during the 500 microsec observa-

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ACCESSION NR: AP4040298

tion time. The magnetic field strength increased at the ends of the discharge tube, thus providing magnetic mirrors for confinement of the plasma. The high frequency electromagnetic field was produced by currents in a 7 cm diameter 7/8 cm pitch helix, coaxial with the discharge tube and loaded every 7 cm by a 450 micromicrofarad capacitor. This line was coupled to a pulsed self-excited oscillator operating at 7.5 megacycles/sec. The density of the plasma was determined with an 8.1 mm microwave interferometer. The electron temperature was determined from the intensity ratio of HeI 4921 to HeI 4713, 5% He having been added to the hydrogen to provide these lines. The ion temperature was determined from the Doppler broadening of HO. The power absorbed by the plasma was determined by measuring the power delivered by the oscillator to the helical line. The maximum power absorbed by the plasma in these experiments was 18 kW. During the flow of the discharge current, the ion temperature rose to several eV and the electron temperature to several tens of eV. The temperatures fell rapidly after the discharge ceased, and the electron temperature was less than 1 eV after 60 microsec. During about the first 100 microsec, when the plasma density was greater than 5×10^{13} cm^{-3}, a non-resonant absorption of high frequency energy was observed, the nature of which is not understood. The expected resonance absorption occurred after the density had fallen below 5×10^{13} cm^{-3}, The

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resonance absorption was investigated and compared with the theory published by the present authors in the preceding paper (ZhTF 34,974,1964 /see Abstract AP4040297/). The conditions of the plasma were such that the absorption was entirely by collision The relation between plasma density and the shift of the absorption peak from the Larmor frequency was in good agreement with the theory. The width of the absorption band varied more rapidly with plasma density than the theory predicts. The energy balance in the plasma is discussed. The energy absorbed by the ions was rapidly transferred to the electrons and lost. It is concluded that significant heating can be achieved with the present method only by increasing the power or providing supplementary heating by the electrons. "The authors express their gratitude to V.T. Tolok, V.I.Komenko, O.S.Pavlichenko, V.A.Suprunenko and V.T.Pilipenko for assisting in the work and discussing the results." Orig.art.has: 5 formulas, 6 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 08May63   DATE ACQ: 18Jun64   ENCL: 00

SUB CODE: ME   NR REF SOV: 007   OTHER: 003

Card 3/3

ACCESSION NR: AP4041998   S/0057/64/034/007/1231/1236

AUTHOR: Vasil'yev, M.P.; Grigor'yeva, L.I.; Dolgopolov, V.V.; Smerdov, B.I.; Stepa-
nov, K.N.; Chechkin, V.V.

TITLE: On the cyclotron resonance in a nonuniform plasma cylinder

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.7, 1964, 1231-1236

TOPIC TAGS: plasma, nonuniform plasma, cyclotron resonance, plasma heating

ABSTRACT: The heating of a cylindrical plasma by resonance absorption at the ion
Larmor frequency (T.H.Stix,Phys.Fl.1,308,1958) is discussed theoretically for the
case when the plasma temperature and density may vary with distance from the axis.
It is assumed that the external high frequency field is produced by travelling waves
of current on a cylindrical surface coaxial with the plasma cylinder, and that the
magnetic pressure in the plasma is large compared with the kinetic pressure. The
thermal motion of the particles tranvsersely to the magnetic field is neglected.
Expressions for the power absorbed are derived by a perturbation method for the four
cases when the plasma is either so hot that the effect of collisions may be neglect-
ed or so cold that the collisions are of overwhelming importance, and either the

Card
1/2

ACCESSION NR: AP4041998

density of the plasma is low or the radius of the plasma cylinder is small compared with the wavelength. The absorption curve of a low density plasma is shown to be symmetric about the cyclotron frequency, but the maximum absorption of a dense plasma filament is found to occur at a lower frequency. The theoretical absorption curves for a cold plasma are reported to be in good agreement with recent experimental data of the present authors (ZhTF 34,No.6,1964). If the density of a cold plasma filament is independent of distance from the axis, the absorption curve is symmetric about the displaced maximum. If, however, the plasma filament is not uniform, the absorption curve becomes asymmetric. The asymmetry of the absorption curves observed earlier by most of the present authors (V.V.Chechkin, M.P.Vasil'yev, L.I.Grigor'yeva and B.I.Smerdov,ZhTF 31,1033,1961) is ascribed to the nonuniform density of the plasma filaments. "In conclusion, the authors thank A.I.Akhezer for his interest in the work and for discussing the results." Orig.art.has: 36 formulas a 2 figures.

ASSOCIATION: none

SUBMITTED: 09May62   ENCL: 00

SUB CODE: ME   NR REF SOV: 004   OTHER: 001

Card
2/2

ACCESSION NR: AP4042945   S/0057/64/034/ 3/1531/1533

AUTHOR: Vasil'yev, M.P.; Grigor'yeva, L.I.; Smerdov, B.I.; Chechkin, V.V.

TITLE: Increase in the diffusion rate of a plasma at the ion cyclotron resonance

SOURCE: Zhurnal tekhnicheskoy fiziki, v.34, no.8, 1964, 1531-1533

TOPIC TAGS: plasma diffusion, cyclotron resonance, hydrogen plasma

ABSTRACT: The effect of a high-frequency azimuthal electric field on the decay rate of hydrogen plasmas in a magnetic field was investigated experimentally. V.V.Dolgo-polov, K.N.Stepanov and the present authors have described the apparatus in detail elsewhere (ZhTF 34,No.6,1964). The plasmas were produced in a 6 cm diameter glass tube by a Penning discharge between cathodes separated by 80 cm. Thirty microseconds after the discharge, the plasma temperature had dropped below 1 eV but the charged particle density was still 1.7×10^{13} cm^{-3}. The subsequent rate of decay of the plasma was independent of the strength of the longitudinal magnetic field provided this was not less than 1.5 kOe. This is ascribed to predominance in the decay mech-anism of recombination over diffusion to the walls. A 7.45 Mc field with negligible

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ACCESSION NR: AP4042945

longitudinal electric field component was applied to the decaying plasma by means
of a section of an artificial helical LC line. When this high-frequency field was
sufficiently strong, its application increased the decay rate of the plasma at all
values of the static longitudinal magnetic field strength; the increase was parti-
cularly marked, however, at a magnetic field strength of 5.6 kOe, at which the ion
Larmor frequency is some 15% greater than the frequency of the applied field. Weak
high-frequency fields were found to decrease the plasma decay rate, but the decay
rate was increased by fields exceeding a certain critical amplitude that increased
with increasing pressure. The decrease of the decay rate in weak high-frequency
fields is ascribed to heating of the plasma, and the increase in strong fields to
enhancement of the plasma diffusion rate. The diffusion enhancement mechanism is
not understood, but it is suggested that a drift instability due to nonuniform heat-
ing may be involved. The authors briefly discuss the effect of the observed pheno-
mena on heating of plasmas at the ion cyclotron resonance under such conditions that
the longitudinal electric field component is significant. "We tender our gratitude
to V.T.Tolok for discussing the work and for valuable remarks." Orig.art.has: 3
figures.

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Card